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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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In the Matter of )

Amendment of Part 90 of the )  
Commission's Rules to Adopt )  
Regulations for Automatic )  
Vehicle Monitoring Services )

PR Docket No. 93-61

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**OPPOSITION TO AND COMMENTS ON PETITIONS  
FOR RECONSIDERATION**

**AMTECH CORPORATION**

David E. Hilliard  
Edward A. Yorkgitis, Jr.  
Karen A. Kincaid  
WILEY, REIN & FIELDING  
1776 K Street, N.W.  
Washington, D.C. 20006  
(202) 429-7000

Its Attorneys

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Pursuant to Section 1.429(f) of the Commission's Rules, 47 C.F.R. § 1.429(f), AMTECH Corporation ("AMTECH"),<sup>1</sup> by its attorneys, hereby responds to the Petitions for Reconsideration of the Report and Order ("*Order*") issued by the Federal Communications Commission ("Commission") in the above-captioned proceeding.<sup>2</sup>

**I. Introduction and Summary.**

To date, twenty Petitions for Reconsideration of the Commission's *Order* adopting rules for the future licensing and continued development of services and equipment operating in the 902-928 MHz band have been filed. Without exception, those petitioners focussing on non-multilateration operations support the Commission's

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<sup>1</sup> AMTECH is a worldwide leader in the manufacturing of non-multilateration AVM devices for transportation applications. AMTECH has been an active participant throughout the course of PR Docket 93-61.

<sup>2</sup> *Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems*, Report and Order, PR Docket No. 93-61, FCC 95-41 (Feb. 3, 1995) [hereinafter *Order*]. A summary of the *Order* and the rules adopted therein is published at 60 Fed Reg. 15248 (March 23, 1995).

efforts to establish a more definite regulatory framework for existing automatic vehicle monitoring ("AVM") licensees and future Location and Monitoring Services ("LMS") utilizing 902-928 MHz. The non-multilateration petitioners generally agree, however, that several aspects of the *Order*, including the frequency tolerance and out-of-band emission limits, must be revised to allow non-multilateration licensees greater operational flexibility. Although the Part 15 and multilateration LMS proponents that filed Petitions for Reconsideration concentrate principally on multilateration operations and Part 15/multilateration compatibility, certain issues raised by these petitioners are pertinent to the success of non-multilateration LMS functions as well.

In this pleading, AMTECH addresses those points raised on reconsideration that are likely to have a significant impact on the effective growth and development of non-multilateration LMS operations. After carefully examining the petitioners' views, AMTECH urges the Commission to take action consistent with the following recommendations:

- The Commission should affirm its decision to allow for the sharing of spectrum by multilateration and non-multilateration LMS systems in limited portions of the 902-928 MHz band, and should extend the spectrum shared by the two system types to include 919.75-923.75 MHz;
- The Commission should not alter the rules and policies governing the relationship between non-multilateration LMS operations, which are primary, and Part 15 devices, which are secondary;
- The frequency tolerance and out-of-band emission limits applicable to non-multilateration LMS licensees should be revised in accordance with the suggestions contained in AMTECH's Petition for Reconsideration;

- If the Commission adopts the consensus proposal for out-of-band emission requirements applicable to multilateration LMS operations, it should make clear that, in the event that a multilateration operator causes harmful interference to a non-multilateration system in an adjacent band, both licensees are required to resolve the interference in accordance with the sharing guidelines set forth in 47 C.F.R. § 90.173(b);
- The Commission should adopt AMTECH's recommendation that non-multilateration systems authorized under the interim rules be grandfathered indefinitely, except in cases of actual harmful interference; and
- The Commission should amend its rules to allow a blanket authorization process for non-multilateration LMS systems used in large-scale, public service projects.

By proceeding in accordance with these general guidelines, the Commission will help ensure the establishment of a regulatory environment capable of promoting the successful development of a diverse and vibrant set of service providers operating throughout the 902-928 MHz band.

## **II. The Record Supports the Commission's Decision to Allow for Sharing Between Non-multilateration and Multilateration LMS Systems.**

In its Petition for Reconsideration, AMTECH requested the Commission to modify its spectrum allocation plan to allow non-multilateration LMS systems to operate in 14 MHz of contiguous spectrum.<sup>3</sup> AMTECH noted that the amount of contiguous spectrum made available to non-multilateration licensees under the

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<sup>3</sup> AMTECH Corporation, Petition for Partial Clarification and Reconsideration, PR Docket No. 93-61, at 17-22 (filed April 24, 1995) [hereinafter *AMTECH Petition for Reconsideration*].

Commission's spectrum allocation scheme -- 12 MHz -- affords these systems access to the minimum quantity of spectrum required for the operation of new, high-data non-multilateration applications such as those being implemented by the Kansas Turnpike Authority and the California Department of Transportation.<sup>4</sup> AMTECH explained that, as a result, the Commission's allocation plan fails to afford non-multilateration licensees adequate spectrum to respond to interference or to facilitate mutual resolution of incompatibilities between systems.<sup>5</sup> To address this problem, AMTECH asked the Commission to allow non-multilateration licensees access to an additional 2 MHz of spectrum -- 921.75-923.75 MHz -- to be shared with multilateration systems.<sup>6</sup>

In its Petition for Reconsideration, Southwestern Bell Mobile Systems, Inc. ("Southwestern Bell") argues that the Commission's decision calling for non-multilateration and multilateration systems to share even 2 MHz of spectrum is "implausible" and contradictory to the Commission's Notice of Proposed Rule Making ("*Notice*"), which proposed to allocate separate spectrum for wide-band and

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<sup>4</sup> AMTECH Petition for Reconsideration at 17-18; *see also Order* at ¶¶ 47-49 (setting forth the Commission's spectrum allocation plan).

<sup>5</sup> *AMTECH Petition for Reconsideration* at 18.

<sup>6</sup> *Id.* at 19-22. In support of this request, AMTECH stressed: (1) the Commission's own findings that sharing between multilateration and non-multilateration LMS systems is workable and necessary; (2) the abundance of evidence in the record indicating that the shared operation of the two system types in all or part of the AVM allocation is feasible; and (3) data in the record reflecting a reduced potential for interference if multilateration and non-multilateration systems are permitted to share 4 MHz of spectrum, as suggested by AMTECH, as opposed to 2 MHz of spectrum, as provided for in the *Order*. *Id.*

narrowband systems.<sup>7</sup> As discussed below, AMTECH submits that Southwestern Bell's request for reconsideration is seriously flawed and should be denied.

Initially, Southwestern Bell's argument overlooks the fact that, after issuance of the *Notice*, an entire record was generated. As discussed in detail in AMTECH's Petition for Reconsideration, that record fully supports the Commission's finding that sharing between multilateration and non-multilateration LMS systems is workable.<sup>8</sup> In addition, it is noteworthy that, while Southwestern Bell criticizes the Commission's ultimate decision to allow for the shared use of 2 MHz in sub-band D, it has been wholly unable to provide any evidence in support of its claim that sharing is "implausible," other than citing to the Commission's *proposal* in the *Notice*. As such, Southwestern Bell has failed to provide any legitimate justification for reversal of the Commission's decision. Indeed, in earlier phases of this proceeding, rather than affirmatively arguing that there should be distinct spectrum between multilateration and

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<sup>7</sup> Southwestern Bell Mobile Systems, Inc., Petition for Reconsideration, PR Docket No. 93-61, at 4 (filed April 24, 1995) [hereinafter *Southwestern Bell Petition for Reconsideration*].

<sup>8</sup> See *AMTECH Petition for Reconsideration* at 19-21 and n.35.

non-multilateration systems,<sup>9</sup> Southwestern Bell introduced evidence that its system could operate in close proximity to AMTECH-type readers.<sup>10</sup>

Moreover, Southwestern Bell's implicit suggestion that non-multilateration LMS systems should not be permitted access to the 2 MHz of shared spectrum in sub-band D would result in a reduction of the amount of contiguous spectrum available to non-multilateration operators to 10 MHz. As discussed above, however, a *minimum* of 12 MHz -- and more preferably 14 MHz -- of contiguous spectrum is required to permit the operation of advanced non-multilateration LMS technologies.<sup>11</sup> Significantly, the Commission explicitly allocated 12 MHz of contiguous spectrum to non-multilateration systems in recognition of the fact that high-data non-multilateration operations require 12 MHz of contiguous spectrum to function effectively.<sup>12</sup> In doing so, the Commission has specifically found that the effective operation of these systems is in the public interest. Southwestern Bell has failed to advance any valid reason for the

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<sup>9</sup> For instance, Southwestern Bell never responded to several band plans proposed by AMTECH in this proceeding that called for the sharing of spectrum between multilateration ("wide-area") and non-multilateration ("local-area") systems.

<sup>10</sup> See Reply Comments of Southwestern Bell Mobile Systems, Inc., at Appendix B, pp. 4-5 (filed March 29, 1994). Further, at the beginning of this proceeding, Southwestern Bell stated that it could share with *any* system currently in existence. See, e.g., Southwestern Bell Mobile Systems, Inc., Informal Comments Concerning North American Teletrac and Location Technologies, Inc.,'s Application for Freeze, PR Docket No. 93-61, at 6, 9 (filed June 29, 1993); *id.*, Affidavit of Keith Rainer at 2-3.

<sup>11</sup> See pages 3-4, *supra*; see also *AMTECH Petition for Reconsideration*, at 18-19 n.31.

<sup>12</sup> *Order* at ¶ 49 and n.123.



adoption of rule changes that would thwart the successful performance of these applications.

Accordingly, AMTECH urges the Commission to deny Southwestern Bell's request for reconsideration, and to proceed with AMTECH's suggestion that the spectrum allocation plan adopted in the *Order* be revised to allow non-multilateration LMS systems access to an additional 2 MHz of spectrum -- at 921.75-923.75 MHz -- to be shared with multilateration systems.

**III. The Rules Governing the Relationship Between Non-Multilateration LMS Operations and Part 15 Operations Should Not Be Revised.**

In the *Order*, the Commission concluded that amateur and Part 15 operations in the 902-928 MHz band will continue to be secondary to services with a higher allocation status, including licensed LMS operations.<sup>13</sup> In addition, the Commission explicitly affirmed that: (1) amateur and Part 15 operations in the band are subject to the conditions that no harmful interference is caused and that interference caused by the operation of an authorized radio station must be accepted; (2) persons operating unlicensed Part 15 devices have no vested or recognizable right to continued use of any given frequency; and (3) an operator of an unlicensed Part 15 device is required to cease operations upon notification by the Commission that the device is causing

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<sup>13</sup> *Order* at ¶¶ 35-36.

harmful interference, and may not resume operations until the condition causing the harmful interference has been corrected.<sup>14</sup>

Significantly, although the Commission adopted elaborate rules to govern the relationship between *multilateration* LMS systems and Part 15 operations,<sup>15</sup> it declined to adopt similar rules with respect to the relationship between *non-multilateration* LMS operations and Part 15 devices. Rather, with regard to the latter, the Commission stated that, "[b]ecause Part 15 devices operate at extremely low power and each has a limited area of operation, the record indicates that they can coexist more easily with non-multilateration LMS systems, which also operate with relatively short range."<sup>16</sup>

On reconsideration, various parties attempt to persuade the Commission to elevate the status of Part 15 operations relative to non-multilateration LMS systems. For example, the Part 15 Coalition argues that the Commission should either reduce the applicable power limit for non-multilateration LMS systems to one watt (the restriction applicable to Part 15 devices) or require all non-multilateration systems to be operated

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<sup>14</sup> *Id.* at ¶ 35.

<sup>15</sup> For example, the Commission set forth technical parameters under which amateurs and unlicensed users of Part 15 devices may operate without risk of being considered sources of harmful interference to multilateration services, and conditioned MTA multilateration LMS licenses on the licensee's ability to demonstrate through actual field tests that their system will not cause unacceptable levels of interference to Part 15 devices. *See Order* at ¶¶ 36-38, 82.

<sup>16</sup> *Id.* at ¶ 32.

within fifty meters of a highway toll plaza or rail siding.<sup>17</sup> The Part 15 Coalition contends that these restrictions are necessary to prevent non-multilateration operations from "blanket[ing] nearby Part 15 devices with a powerful interfering signal" and to "ensure that [non-multilateration] systems do not become a substitute for . . . other licensed services."<sup>18</sup> In addition, Southwestern Bell and Metricom argue that the rules governing the relationship between Part 15 and multilateration LMS operations should apply to non-multilateration LMS operations as well.<sup>19</sup> AMTECH urges the Commission to deny these requests, which are completely unsupported by the record.

At the outset, the arguments advanced by the Part 15 Coalition, Southwestern Bell, and Metricom ignore and subvert the very meaning of "secondary status." By definition, a secondary user may not cause harmful interference to and must accept any interference caused by an authorized radio station operating in the same band.<sup>20</sup> In asking the Commission to restrict the operational parameters of non-multilateration LMS systems so that these systems will not risk interference to Part 15 devices and will accept any interference received by Part 15 operators, the petitioners seek to gain primary status for Part 15 devices vis-a-vis non-multilateration LMS operators. There

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<sup>17</sup> The Part 15 Coalition, Petition for Reconsideration, PR Docket No. 93-61, at 18 (filed April 24, 1995).

<sup>18</sup> *Id.*

<sup>19</sup> *Southwestern Bell Petition for Reconsideration* at 9 n.23; Metricom, Inc., and Southern California Edison Company, Petition for Reconsideration and Clarification, PR Docket No. 93-61, at 17-18 (filed April 24, 1995).

<sup>20</sup> *See* 47 C.F.R. § 15.5(b).

is simply no justification for redefining the meaning of "secondary status" in this unprecedented and ultimately dubious manner.<sup>21</sup>

Furthermore, the claims advanced by the Part 15 Coalition and other petitioners are based on unfounded assumptions and are patently overreaching. The contention that non-multilateration systems should be limited to one watt or should be required to operate within fifty meters of a highway toll plaza or rail siding is contrary to the evidence in the record and utterly insupportable. Non-multilateration systems equipped with AMTECH technology are already being used for far more than toll plaza and rail applications. AMTECH is unaware of any complaints of unacceptable interference to a Part 15 user as a result of these operations.

As AMTECH has discussed in prior pleadings submitted in PR Docket No. 93-61, the general complaint advanced by Part 15 proponents throughout the course of this proceeding has been that *multilateration* LMS systems and Part 15 devices are incompatible.<sup>22</sup> With few exceptions voiced only as passing references, Part 15

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<sup>21</sup> In addition, it is noteworthy that there is nothing in the record that provides a logical basis for the specific limitations suggested by the Part 15 Coalition. As such, adoption of these limits would be arbitrary and capricious, and would unnecessarily restrict the operational flexibility of non-multilateration licensees without producing any concomitant public interest benefit. *See, e.g., MCI Telecommunications Corp. v. FCC*, 842 F.2d 1296 (D.C. Cir. 1988) (agency actions must reflect the existence of a "rational connection" between the evidence in the record and the ultimate choice made).

<sup>22</sup> *See, e.g., Reply Comments of AMTECH Corporation to Comments on Ex Parte Presentations*, PR Docket No. 93-61, at 7-8 (filed March 29, 1994) [hereinafter *AMTECH Ex Parte Reply*].

commenters have not heretofore suggested that *non-multilateration* systems and Part 15 devices are incompatible.<sup>23</sup> It is telling that *none* of the parties that advanced these passing claims now petitions the Commission to extend to Part 15/non-multilateration operations the un rebuttable presumption adopted in the *Order* to determine whether Part 15 devices may be considered sources of harmful interference to multilateration systems, nor do these parties ask that non-multilateration licenses be conditioned on the licensees' ability to demonstrate that they will not cause unacceptable interference to Part 15 devices.<sup>24</sup>

The extensive experience of AMTECH and its customers also supports the Commission's conclusion that non-multilateration LMS systems and Part 15 devices are compatible. AMTECH technology is used in over 2500 AVM installations that serve over two million vehicles. As mentioned above, AMTECH is not aware of any complaints of unacceptable interference caused to a Part 15 operator by an AMTECH-

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<sup>23</sup> In their March 15, 1994, *Ex Parte* Comments, KNOGO Corporation, CellNet Data Systems, and Itron, Inc., expressed concern about the proliferation of all AVM/LMS services generally. See Supplemental Comments of CellNet Data Systems, PR Docket No. 93-61 (filed March 15, 1994); Supplemental Comments of KNOGO Corporation, PR Docket No. 93-61 (filed March 15, 1994); Comments of Itron, Inc., PR Docket No. 93-61 (filed March 15, 1994).

<sup>24</sup> KNOGO Corporation did not file a Petition for Reconsideration of the *Order*. Although CellNet Data Systems did file a Petition for Reconsideration, it does not call for such rule changes vis-a-vis non-multilateration systems. Itron, Inc., did not file a Petition for Reconsideration but many of its customers did -- these petitioners do not, however, request rule changes to this effect. See, e.g., Ad Hoc Gas Distribution Utilities Coalition, Petition for Limited Reconsideration, PR Docket No. 93-61 (filed April 24, 1995).

equipped system, nor to AMTECH's knowledge have AMTECH users ever complained of unacceptable interference from a Part 15 device.<sup>25</sup>

Even more importantly and apart from the general compatibility of non-multilateration systems and Part 15 devices, the suggested elevation of Part 15 operations would not constitute sound public policy. A large number of licensees of existing non-multilateration systems are state and other local governmental authorities that rely on the smooth functioning of non-multilateration LMS operations for safe and efficient automated toll collection on toll roads, bridges, and carrier-ways, for monitoring of commercial vehicles accessing airport terminals to pick-up and drop-off customers. Many other licensees use non-multilateration technologies to track efficiently international and interstate shipping via tractor trailers, intermodal containers, and rail cars, among other applications. These are the very uses contemplated over twenty years ago when the Commission first allowed AVM systems to use the 902-928 MHz band, long before unlicensed devices were employed, *on a secondary basis to licensed systems*, in the 902-928 MHz band.

Moreover, positive vehicle identification in the aforementioned non-multilateration applications typically must occur within a very short window of opportunity, sometimes as few as one hundred milliseconds. While AMTECH equipment is generally very robust, interference from secondary unlicensed devices is a real possibility. An inability to deal with such interference could threaten the

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<sup>25</sup> See *AMTECH Ex Parte Reply* at 7-8.

successful operation of many non-multilateration systems and the important public benefits they offer.

The Part 15 Coalition's assertion that the limitations it requests are necessary to ensure that non-multilateration systems do not become a substitute for other licensed services evidences a similar lack of understanding of certain fundamental characteristics of non-multilateration LMS operations. Non-multilateration LMS systems are inherently special use systems that may not engage in the broader panoply of permissible uses allowed to be rendered by multilateration systems.<sup>26</sup> In addition, the low power and height restrictions applicable to non-multilateration operations preclude the use of these systems as a substitute for other 900 MHz operations such as conventional dispatch services.<sup>27</sup>

Finally, in calling for non-multilateration systems to accept interference from and not cause unacceptable interference to Part 15 devices, Southwestern Bell and

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<sup>26</sup> See *Order* at ¶ 24.

<sup>27</sup> The absurdity of the Part 15 Coalition's contention that non-multilateration LMS systems might become substitutes for other licensed services is made clear by examining the power and height limitations applicable to 900 MHz private land mobile trunked systems, which may operate at up to 1 kW output power and a 1000 foot height limit. See 47 C.F.R. § 90.635(c). Under the new rules, ERP of non-multilateration systems is restricted to 30 watts ERP over the licensees' authorized bandwidth, and the antenna height above ground of these systems is limited to 15 meters. *Order* at ¶ 93; see also *Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems*, Erratum, PR Docket No. 93-61, at ¶ 4 (Feb. 17, 1995) (correcting ¶ 93 of the *Order*). AMTECH's request for reconsideration of these limits would not increase the minimal interference potential of non-multilateration systems beyond that presented by the rules adopted in the *Order*.

Metricom overlook significant technical differences in the configuration of multilateration and non-multilateration LMS systems. For example, as specifically recognized by the Commission, non-multilateration systems operate at a relatively short range.<sup>28</sup> In addition, non-multilateration system antennas are typically canted downward, usually have a low duty cycle, and operate for short bursts of time, all of which make them more compatible with Part 15 operations than multilateration systems. Undoubtedly, the fact that there is no evidence in the record of a significant interference problem between non-multilateration systems and Part 15 devices is directly related to these characteristics.<sup>29</sup> Should an interference problem develop, however, it is essential that the travelling public, railroads, and the public service agencies that depend on non-multilateration LMS operations have reasonable recourse to resolve interference caused by others. It is for precisely this reason that non-multilateration systems have been made co-equal with other LMS licensees and primary to Part 15 operations.

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<sup>28</sup> *Order* at ¶ 32.

<sup>29</sup> Notably, Metricom, which now seeks protection from non-multilateration systems, earlier in this proceeding unqualifiedly touted the general robustness of Part 15 operations and suggested that a non-multilateration systems do not hinder the successful operation of Part 15 devices. Comments of Metricom, Inc., PR Docket No. 93-61, at 16, 17 and n.31 (filed Mar. 15, 1994); *accord* Comments of TIA Mobile and Personal Communications, Consumer Radio Section PR Docket No. 93-61, at 5 (filed Mar. 15, 1994).



In short, elevating the status of Part 15 devices relative to non-multilateration LMS systems would set a lamentable precedent for other parts of the spectrum.<sup>30</sup> In addition, it would have the potential to undermine the important public interest benefits of reliable non-multilateration systems such as those described above. Accordingly, the Commission should not change the relative priorities of access of non-multilateration LMS systems and Part 15 unlicensed devices.

**IV. The Commission Should Revise the Frequency Tolerance Limit Applicable to Non-Multilateration LMS Systems.**

There is general recognition among the non-multilateration petitioners that the .00025 percent frequency tolerance limit adopted in the *Order* is unsupported by the record and will unnecessarily restrict the operational flexibility of non-multilateration LMS licensees. These petitioners also agree that no legitimate concern exists justifying the adoption of a rigorous frequency tolerance limit as a mechanism for preventing non-multilateration systems from causing interference to each other. Accordingly, AMTECH submits that the record supports the revision of the frequency tolerance limit.

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<sup>30</sup> AMTECH is not trying to conjure specters. CellNet Data Systems, Inc., expressly states in its Petition for Reconsideration that the Part 15 victory in having their status elevated vis-a-vis *multilateration* systems should be used as a model for enhancing the status of Part 15 devices in other bands. See CellNet Data Systems, Inc., Petition for Reconsideration, PR Docket 93-61, at 4 (filed April 24, 1995).

In its Petition for Reconsideration, AMTECH noted that the Commission's decision to impose frequency tolerance limits appeared to have been premised on the desire to protect against the potential for interference to LMS systems operating close to the band edge.<sup>31</sup> AMTECH suggested that this concern could be accommodated without imposing unnecessary restraints on the technical flexibility of non-multilateration licensees if the .00025 percent frequency tolerance limit were made to apply only to those systems with center frequencies located within a distance,  $D$ , from the band edge, where  $D = 0.5(\text{authorized bandwidth}) + 40 \text{ kHz}$ .<sup>32</sup>

Hughes Transportation Management Systems ("Hughes") also maintains that the .00025 percent frequency tolerance limit is exceedingly strict, offers little practical value, if any, to non-multilateration operations, and is not supported by the record.<sup>33</sup> In addition, Hughes states that the .00025 percent limit does not add significantly to existing means for avoiding interference between non-multilateration systems within designated sub-bands because these systems operate over relatively short ranges and thus, instances of coverage overlap between facilities on adjacent channels will be rare.<sup>34</sup> Likewise, Texas Instruments Incorporated and MFS Network Technologies,

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<sup>31</sup> *AMTECH Petition for Reconsideration* at 13-14.

<sup>32</sup> *Id.* at 14.

<sup>33</sup> Hughes Transportation Management Systems, Petition for Reconsideration, PR Docket No. 93-61, at 7-10 (filed April 24, 1995) [hereinafter *Hughes Petition for Reconsideration*].

<sup>34</sup> *Id.* at 11.

Inc., ("TI/MFS") claim that the .00025 percent frequency tolerance limit is unnecessarily restrictive and ask that it be revised. In advancing this request, TI/MFS underscore the fact that there has not been a significant interference problem among non-multilateration LMS providers or between non-multilateration operators and Part 15 users.<sup>35</sup>

The alternative frequency tolerance limit suggested by AMTECH in its Petition for Reconsideration is particularly appropriate because AMTECH's proposed limit will accommodate the competing interests of all affected parties. Specifically, AMTECH's proposal would require tight stability at the band edges, where the potential for interference with multilateration systems is greatest, thereby accommodating the Commission's apparent concerns with the potential for interference between non-multilateration and adjacent-channel multilateration operations.<sup>36</sup> Away from the band edge, however, AMTECH's proposed frequency tolerance limit avoids the imposition of unnecessary restraints on non-multilateration LMS systems' operations. Accordingly, AMTECH requests the Commission to revise the frequency tolerance

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<sup>35</sup> Texas Instruments Incorporated and MFS Network Technologies, Inc., Petition for Clarification and Limited Reconsideration, PR Docket No. 93-61, at 7 (filed April 14, 1995) [hereinafter *TI/MFS Petition for Reconsideration*].

<sup>36</sup> See *Order* at ¶ 91 ("We agree with Teletrac that tighter frequency tolerances are justified to help reduce the potential for interference to systems operating on adjacent frequencies and that this argument extends to non-multilateration as well as multilateration systems.").

limit in accordance with the suggestion contained in AMTECH's Petition for Reconsideration.<sup>37</sup>

**V. The Commission Should Revise the Out-of-Band Emission Requirements Adopted in the *Order* In Accordance with AMTECH's Recommendation.**

In the *Order*, the Commission concluded that LMS licensees will be required to attenuate their emissions by  $55 + \log(P)$  dB at the edges of specified sub-bands.<sup>38</sup> On reconsideration, AMTECH recommended that this requirement be revised for non-multilateration LMS transmitters using 2 watts or less of output power. Specifically, AMTECH urged the Commission to reconsider its emission mask rules so that such

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<sup>37</sup> As a parenthetical matter, AMTECH notes that in their Petitions for Reconsideration, Hughes and TI/MFS state that the height, power, and out-of-band emission restrictions adopted in the *Order* for non-multilateration LMS systems provide sufficient protection against interference among non-multilateration operations without the need for stringent frequency tolerance limits. *See Hughes Petition for Reconsideration* at 10-11; *TI/MFS Petition for Reconsideration* at 7. AMTECH agrees. Significantly, although AMTECH has asked the Commission to modify the height, power, and out-of-band emission limits adopted in the *Order*, the alternative restrictions proposed by AMTECH preserve the same degree of interference protection as the limits adopted in the *Order*, while at the same time conferring greater flexibility for non-multilateration system design. *See AMTECH Petition for Reconsideration* at 9-13, 14-15. Further, any non-multilateration licensee taking advantage of these alternative restrictions will still be required to share in cooperation with other LMS licensees in accordance with 47 C.F.R. § 90.173(b).

<sup>38</sup> *Order* at ¶ 98. It is AMTECH's understanding that the parameter  $P$  in the emission mask equations is output power, not EIRP. *See TI/MFS Petition for Reconsideration* at 16.

transmitters are subject to the general land mobile attenuation requirements for out-of-band limitations on radiated signals, which is  $43 + 10 \log(P)$ .<sup>39</sup>

In their Petition for Clarification and Partial Reconsideration, TI/MFS ask the Commission to confirm that the out-of-band emission calculation specified in the *Order* means that a power level equal to "- 55 dBW" is permitted as the maximum out-of-band emission. TI/MFS suggest that if the calculation is intended to be negative for transmitter powers below 1 watt, it would be clearer simply to specify a maximum out-of-band power limit of "-55 dBW" for all systems.<sup>40</sup> For the reasons stated in its Petition, AMTECH believes that the public interest would be best served by granting AMTECH's revised emission mask specifications.<sup>41</sup>

#### **VI. AMTECH Has No Objection to the Multilateration Consensus Proposal on Out-of-Band Emissions.**

On reconsideration, a consensus proposal was advanced by all existing multilateration system proponents urging the Commission to replace the emission mask adopted for multilateration LMS systems. These petitioners propose the use of

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<sup>39</sup> See *AMTECH Petition for Reconsideration* at 14-15; see also 47 C.F.R. § 90.209(c)(1)(iii).

<sup>40</sup> *TI/MFS Petition for Reconsideration* at 16-17.

<sup>41</sup> In the event the Commission grants TI/MFS's petition on this point, it should make clear that the limit of -55 dBW is measured in terms of output power, not EIRP, so as to not make the mask even more burdensome.

specifications suited to a digitally modulated emission in a mobile environment.<sup>42</sup>

AMTECH does not object to the consensus proposal, provided that the Commission make clear that, if a multilateration system causes harmful interference to a non-multilateration system operating in an adjacent band, both licensees will be required to resolve the interference problem in accordance with the provisions set forth in Section 90.173(b) of the Commission's Rules, 47 C.F.R. § 90.173(b).

**VII. The Commission Should Grandfather Existing Non-Multilateration Systems Indefinitely, Except in Cases of Actual Harmful Interference.**

In its Petition for Reconsideration, AMTECH urged the Commission to permit grandfathered non-multilateration LMS systems to continue operating indefinitely in accordance with the technical requirements specified in the interim AVM rules, provided that no actual harmful interference occurs to other LMS licensees.<sup>43</sup>

AMTECH explained that Commission's decision to require *all* non-multilateration LMS systems licensed in accordance with the interim rules to relocate to the 902-904 MHz and 909.75-921.75 MHz bands and to comply with the new rules by April 1, 1998 -- irrespective of the likelihood of actual interference -- is unnecessarily burdensome and overbroad, and would be highly disruptive to the operations of existing licensees.<sup>44</sup>

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<sup>42</sup> The consensus proposal is discussed in detail on pages 17-20 of the Petition for Reconsideration of Pinpoint Communications, Inc., filed in PR Docket No. 93-61 on April 24, 1995.

<sup>43</sup> *AMTECH Petition for Reconsideration* at 3-8.

<sup>44</sup> *Id.* at 5-7.

The New Jersey Highway Authority, *et al.*, ("the Interagency Group"), also expresses concern that the grandfathering provisions applicable to non-multilateration systems will be insufficient to allow transportation agencies using existing non-multilateration facilities to recoup the money they invested to acquire equipment deployed in accordance with the interim rules. Accordingly, the Interagency Group asks the Commission to extend the grandfathering policies under Section 90.363(b) of the Rules for an additional three years.<sup>45</sup>

AMTECH and the Interagency Group advance nearly identical concerns in support of their requests for reconsideration of the non-multilateration grandfathering provisions. AMTECH's proposal best addresses the needs of grandfathered non-multilateration systems, however, by providing a solution that is more tailored to situations involving actual interference. In particular, a requirement that *all* grandfathered non-multilateration systems must comply with the new rules by *any* date certain (*i.e.*, April 1, 1998 or April 1, 2001) irrespective of whether or not such compliance is necessitated by the likelihood or existence of actual harmful interference is by its very nature unnecessarily overbroad.

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<sup>45</sup> The New Jersey Highway Authority, the New Jersey Turnpike Authority, the New York State Thruway Authority, the Pennsylvania Turnpike commission, the Metropolitan Transportation Authority Bridges and Tunnels, the Port Authority of New York and New Jersey, the South Jersey Transportation Authority, and the Delaware River Port authority, Petition for Reconsideration, PR Docket No. 93-61, at 3-6 (filed April 24, 1995) [hereinafter *The Interagency Group Petition for Reconsideration*].

This overbreadth can be cured to a substantial extent if non-multilateration systems authorized under the interim rules are permitted to continue operating in accordance with those rules and at their current frequency locations indefinitely unless these licensees cause actual harmful interference to other LMS systems operating in the same bands. As discussed in AMTECH's Petition for Reconsideration, upon a legitimate complaint of harmful interference by an LMS licensee, the grandfathered non-multilateration system would be required to move frequencies and/or comply with the new technical requirements, as necessary, to eliminate the interference problem.<sup>46</sup> By revising its rules to this effect, the Commission will ensure that LMS systems are able to operate free of harmful interference and will impose a burden on grandfathered non-multilateration licensees that is only as great as necessary to guarantee the integrity of other LMS operations. Accordingly, AMTECH requests the Commission to revise 47 C.F.R. § 90.363(e) to permit non-multilateration systems licensed under the interim AVM rules to continue operating in accordance with those rules indefinitely, unless actual harmful interference results.

**VIII. The Commission Should Allow A Blanket Authorization Process For Non-Multilateration Systems Used In Large-Scale, Public Service Projects.**

Finally, AMTECH supports the Interagency Group's request that the Commission establish a blanket authorization process for non-multilateration LMS

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<sup>46</sup> *AMTECH Petition for Reconsideration* at 7.



systems used in large-scale, public service projects. The Interagency Group advances this request to enact a means for ensuring that necessary frequencies are available when required during a lengthy build-out schedule.<sup>47</sup> The proposal pertains only to public service systems with multiple sites and readers, and seeks to provide a streamlined, single-application procedure for securing all licenses required to operate necessary sites on a system-wide basis after all of those sites have been identified.<sup>48</sup>

AMTECH agrees with the Interagency Group that deployment of the blanket authorization procedure would facilitate planning and cut administrative costs during the application process, thereby greatly assisting state and local governmental authorities operating under tight budgetary constraints.<sup>49</sup> In this same regard, adoption of the Interagency Group's proposal would ultimately benefit the public by promoting the effective use of taxpayer monies and toll revenues in expeditious deployment of facilities. Lastly, adoption of the proposed procedure would help promote the effective use of the Commission's resources by reducing the burden on the agency's licensing staff.<sup>50</sup>

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<sup>47</sup> *The Interagency Group Petition for Reconsideration* at 2-3.

<sup>48</sup> *Id.*

<sup>49</sup> *See id.* at 3.

<sup>50</sup> This rule change should not be limited to publicly funded agencies. AMTECH understands that the budget of some quasi-governmental toll collection agencies, for example, comes entirely from the toll revenues they collect. Accordingly, all public service systems should be allowed to benefit from blanket licensing procedures.